Algebra 2 5.0
Review 2.1-2.5

Name Key
Date ______________ Pd. ______

**Evaluate using the order of operations. Circle your final answer.**

1. $\dfrac{(5-3^2)}{(5-3)}+3^4\div3$ $=25$

$\dfrac{-4}{2}+81\div3$

$-2+27$

2. $\frac{1}{3}(81\div9)+3^2-4\times2$

$3+9-8$

$4$

**Simplify. Be sure your final answer includes only positive exponents. Show ALL work and be sure to circle your final answer.**

3. $\dfrac{a^{20}b^7c^9}{a^{18}bc^{13}}=\dfrac{a^2b^6}{c^4}$

4. $(d^{-3}f^9g^{14})^{-4}=d^{12}f^{-36}g^{-56}$

$\dfrac{d^{12}}{f^{36}g^{56}}$

5. $(n^4m^9p^{-7})^2(n^{-1}m^7p^{-8})^{-3}$

$n^8m^{12}p^{-14}\ n^3m^{-21}p^{24}$

$n^{11}m^{-3}p^{10}=\dfrac{n^{11}p^{10}}{m^3}$

6. $\left[\dfrac{(d^2f^2g^{-5})}{(d^6f^8g)}\right]^{-4}\left[\left(\dfrac{d^2}{g^9}\right)\right]^3$

$(d^4f^6g^6)^4$

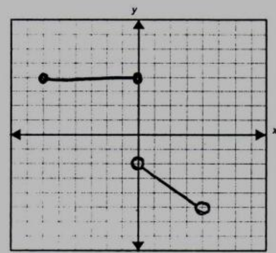
$\dfrac{d^{16}f^{24}g^{24}}{1}\left[\dfrac{d^6}{g^{27}}\right]=\dfrac{d^{22}f^{24}}{g^3}$

7. $\left(\dfrac{3}{4}\right)^{-3}=\dfrac{64}{27}$

8. $216^{-\frac{2}{3}}=\left(216^{\frac{1}{3}}\right)^{-2}=6^{-2}=\dfrac{1}{36}$

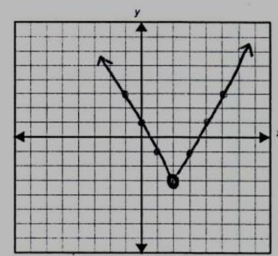
**State if the following relations represent a function. Then find the domain and range of each.**

9.



Function? Y or N
Domain: $[-6, 4)$
Range: $(-5, -2) \cup \{4\}$

10.



Function? Y or N
Domain: $(-\infty, \infty)$
Range: $[-3, \infty)$

**Let $f(x) = x^2 - 4x$ and $g(x) = x + 8$. Find each new function and write it in simplest form. State any domain restrictions.**

11. $f + g = (x^2 - 4x) + (x + 8)$

$\underline{x^2 - 3x + 8}$

12. $g - f$

$(x + 8) - (x^2 - 4x)$

$x + 8 - x^2 + 4x$

$\underline{-x^2 + 5x + 8}$

13. $f \cdot g = (x^2 - 4x)(x + 8)$

$= \underline{x^3 + 4x^2 - 32x}$

14. $\dfrac{f}{g} = \dfrac{x^2 - 4x}{x + 8} \quad x \neq -8$

15. $f(g(x)) = (x + 8)^2 - 4(x + 8)$

$= x^2 + 16x + 64 - 4x - 32$

$= \underline{x^2 + 12x + 32}$

16. $g(f(x)) = (x^2 - 4x) + 8$

$= \underline{x^2 - 4x + 8}$

17. $g(g(x)) = (x + 8) + 8$

$= \underline{x + 16}$

18. $f(f(x)) = (x^2 - 4x)^2 - 4(x^2 - 4x)$

$= x^4 - 8x^3 + 16x^2 - 4x^2 + 16x$

$= \underline{x^4 - 8x^3 + 12x^2 + 16x}$